5.0 CUMULATIVE EFFECTS

Cumulative effects on the environment result from the incremental effect of an action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes them. These effects can result from individually minor, but collectively significant, actions taking place over a period of time (40 CFR 1508.7). This section considers the cumulative effects resulting from the implementation of the Proposed Action and reasonably foreseeable future actions in the TA-3 area and adjacent lands.

LANL Operations at TA-3 and TA-58. No new types of operations and few new personnel would be introduced into LANL as a result of the Proposed Action. Land use within TA-3 and TA-58 would remain unchanged. Local traffic congestion centered around West Jemez Road, Diamond Drive, East Jemez Road, and Casa Grande Drive would be affected by the addition of approximately 42 vehicle trips per day (assuming 0.45 cars per employee) during each morning and evening rush hour. The addition of the SCC, the NISC and the Research Park (located within the northern edge of TA-3 on property leased by the Los Alamos Economic Development Corporation that is within the LANL boundaries) will increase the TA-3 traffic congestion. Use of these facilities will add an estimated total of 2,300 to 3,000 vehicle trips per day when all three facilities are completed. SCC and NISC are scheduled to be completed in 2002 and 2001 respectively; the Research Park is planned to be completed by 2009. The TA-3 area already suffers from over-crowded intersections during rush hours. This problem will become more severe as the Research Park, especially, is completely developed. There may be a slight delay thereafter until full occupancy is achieved; the first building in the Research Park was completed in March 2001 and is expected to provide space for 300 to 400 workers. Additionally, within the next 4 to 5 years, construction of a new office building to replace the current DOE Los Alamos Area Office (LAAO) Building at TA-43 is being contemplated for TA-3. This would add about 100 new workers to the TA-3 traffic burden. Traffic studies of TA-3 have already identified several recommended changes that would help alleviate the traffic congestion within this area, but no road realignment work has been proposed and funded yet. It is anticipated that this may occur at some future date within the next decade.

Parking availability in the TA-3 general area would change from the current configuration due to the effects of new reconfiguration of industrial uses taking place over the next 10 years. The Proposed Action would not alter the overall TA-3 parking space availability. The addition of about 780 new parking spaces due to the combined relocation of government vehicle parking and the new parking structure that is a part of the proposed Building 3-43 replacement project would benefit the entire TA-3 area. Upon completion of the SCC and NISC, additional parking space that is now unavailable, due to its being used for equipment and building material lay down areas, will become available for vehicle parking. The Research Park will have its own parking spaces and will therefore have no affect on the rest of TA-3's parking needs. The new DOE LAAO Building would have its own parking for the 100 additional workers it would bring to TA-3 but may eliminate a number of parking spaces

currently used at that site. Other additional construction and demolition work conducted over the next 10 years within TA-3 would include several relatively minor activities that are anticipated to result in little overall effect with regards to parking space availability or needs. Actions would likely include the construction and removal of several small buildings and structures, and the decontamination and decommissioning of some other facilities.

The overall visual quality within TA-3 and TA-58 would change with the soon-to-be-completed SCC, NISC and Research Park structures. These buildings are anticipated to be constructed using modern designs and construction materials; as the first major buildings constructed in the last 40 years within TA-3, they are noticeably different from the designs and materials used in the older structures that make up the bulk of the TA-3 area. The addition of the new office building, parking structure and lecture hall proposed for the Building 3-43 replacement project would contribute further to the visual improvements in the TA-3 area, as would the demolition of the old Building 3-43. From a distance, though, the SCC, NISC, Research Park and the new office building and parking structure would cause an increase in the number of visually disruptive elements against the natural lines of the background landscape. The minor negative effects on viewsheds of regional development and slight increased lighting in the night sky would be considered a regional impact. The Proposed Action is not expected to be a major contributor to this effect; however, the building would be one-story and would therefore not be visible above the building outlines of nearby structures. Additionally, the parking area and the BSL-3 facility would require little nighttime lighting and those lights required would be designed to shine downward toward the parking lot and ground surfaces and away from the canyon bottom.

Implementing the Proposed Action would generate noise primarily during the daytime hours during construction activities. This noise generation would be mostly confined to the immediate TA-3 area of generation and would be mostly heard by the involved workers. However, there may be additional noise generation occurring at the Research Park at TA-3 within the same time period. Cumulatively, this noise may be audible for short periods of time during the daytime hours to workers within TA-3 and possibly beyond TA-3. Due to the general manner in which sound attenuates across mesas and canyons, residents located across the canyon from TA-3 should not be disturbed by the sounds originating there from these projects.

The Proposed Action, together with other planned or ongoing construction activities at LANL, are expected to have a cumulative benign or even beneficial effect on worker health at LANL under normal operations. Potential adverse health effects to construction workers should be minimal and cumulative; beneficial or adverse effects on public health are not expected to occur under normal conditions.

Workers at LANL would benefit from the replacement of facilities with new structures that meet current DOE and Uniform Building Codes and working conditions would be further enhanced by construction activities at LANL. Improved parking conditions within the TA-3 general area would also reduce the risk of pedestrian and automobile accidents from all

activities conducted. The cumulative increase in the amount of construction activity would increase the risk of construction worker injuries. However, because of rigorous health and safety requirements at LANL and based on industry injury rates of 0.04 deaths per 100 full-time construction workers, the potential for a major injury or fatality from all new construction activities at LANL would be expected to remain low. Since members of the public do not live or work in the vicinity of the Proposed Action or other new facilities at LANL, they would not be affected by these activities.

Nearby Areas Within LANL and Off-site Areas Administered by Others. Other activities that will likely occur at or nearby LANL over the next 10 years include the conveyance of most of TA-43 to Los Alamos County; the subsequent demolition of the existing DOE LAAO Building at TA-43; and the construction of new multi-story residential units in place of the DOE LAAO Building and over its immediately surrounding area. Construction of housing within Los Alamos County to replace housing units lost during the 2000 Cerro Grande Fire will likely continue over the next several years (until or through about 2005). These actions will add to the overall amount of construction activities within Los Alamos County and the number and availability of construction materials, workers and local housing in the vicinity. Traffic into and out of Los Alamos County is expected to increase over the status-quo due to the trips made by construction workers and the transport of materials. The visual character of the newly constructed buildings is expected to have a slight positive effect on the visual character of LANL and Los Alamos County, and is expected to only result in a very slight increase in nighttime lighting of the area. The overall footprint of urban development within Los Alamos County is expected to change slightly over the next 10 to 15 years with the possible development of Rendeja Canyon as contemplated by the County of Los Alamos when DOE conveys that tract to the County for their use (anticipated to occur before the end of 2007).

LANL, the U.S. Forest Service, BNM and Los Alamos County will all be conducting wildfire hazard reduction activities that will include forest thinning activities over the Pajarito Plateau (including within LANL) and possibly some prescription burns outside the areas of immediate LANL and urban interfaces within the forested areas nearby. The resulting forest areas in and around LANL will be much more open in appearance than currently, and the hazard from wildfires is expected to be reduced; although wildfires would still occur, they would be much easier to bring under control and manage as lower and mid-level fires rather than as crown fires of the type exemplified by the Cerro Grande Fire. Within LANL, forests will be managed according to the Wildfire Hazard Reduction and Forest Health Improvement Program, with specific project plans, such as the Wildfire Hazard Reduction Project Plan (LANL 2001m).

Use of the forest areas west and south of LANL and Los Alamos County for recreation, habitat management purposes, and timber production (only within the Santa Fe National Forest) should remain unchanged. Critical Habitat Areas for the Mexican spotted owl have been established by the U.S. Fish and Wildlife Service within the Pajarito Plateau areas outside of LANL. One area within LANL has been identified as being occupied by the

Mexican spotted owl as well. These areas will continue to be managed for the foreseeable future as appropriate for recovery of that species. Within LANL, potential or occupied habitat of federally-protected threatened or endangered species is managed in accordance with the LANL Threatened and Endangered Species Habitat Management Plan. Additional management plans for biota at LANL are being developed cooperatively by DOE and UC.

Within LANL, it is contemplated that there may be some facility construction over the next 10 years in the vicinity of TA-55. One Proposed Action is to build a new building at TA-55 to house the TA-18 critical assembly and material storage operations. Another Proposed Action is to construct a new electric power line from the general White Rock area upslope to the TA-8 area. Contemplated actions include possible building construction within the general TA-55 area of a replacement or partial replacement building for the activities conducted with the existing TA-3 Chemistry and Metallurgy Research (CMR) Building (with the demolition of the existing CMR Building possible) and the possible construction of a new building for pit manufacturing use (these actions are speculative at this time but are currently under general discussion). Also, there is general discussion and contemplation of a new waste management facility within TA-50 (next to TA-55). Proposed actions elsewhere within LANL include the decontamination and decommissioning of TA-18 facilities within Pajarito Canyon, and their possible demolition (in whole or in part); the demolition of the TA-2 and TA-41 structures and buildings within Los Alamos Canyon; and some small-scale building and structure construction and demolition activities within the TA-8 and TA-16 areas. Additional construction and demolition actions may be proposed at TA-3, TA-55 and other TAs at LANL to replace aging structures and facilities; these are currently only contemplated in very general terms. These generally contemplated actions could include some additional construction and demolition work as infrastructure, structures, and buildings approach 50 years of continuous use. Some of the facilities may include demolition of the CMR Building.

The overall footprint of development within LANL is expected to be only slightly expanded over the next 10 to 15 years. Overall, electric utility use and potable water use within LANL is expected to remain fairly constant after the SCC comes on line. Actions taken by UC to reduce usage of water and generation of waste during operations should actually decrease as various reuses of wastewater and waste materials is undertaken over the next several years. The recycling of treated effluent water from the LANL sewage treatment plant at the cooling towers for SCC is the first step.

Waste volume generation during the next 10 years from decontamination, decommissioning, and demolition of buildings and through environmental restoration efforts will be large. The waste will likely be of a variety of types including non-hazardous waste, hazardous wastes, mixed wastes, and radioactive wastes (of both low-level and transuranic [TRU] wastes). The Los Alamos County Landfill is expected to be closed within the next 3 years although this is not due to its having been filled to its capacity. LANL and Los Alamos County will have to contract for waste disposal with another solid waste disposal facility offsite. Low-level radioactive waste is disposed of at Area G at LANL; this disposal site has adequate room to

accommodate waste generation estimates beyond the next 10 years as identified in the 1999 LANL SWEIS (DOE 1999a) and Record of Decision (ROD) (DOE 1999c). TRU waste generated at LANL from environmental restoration activities would be managed and stored at LANL, but no disposal path is currently available for this non-defense generated waste type. Mixed wastes (both low-level mixed and TRU-mixed wastes) are managed and stored at LANL; there is currently no disposal of this waste type available. Hazardous wastes generated at LANL are managed and stored onsite and shipped offsite for treatment and disposal as adequate and appropriate facilities become available. Detailed projections of wastes by types are provided in the 1997 *Final Waste Management Programmatic Environmental Impact Statement for Managing Treatment, Storage, and Disposal of Radioactive and Hazardous Waste* (DOE 1997d) and DOE's subsequent RODs based on that analysis. Additionally, the waste generated at LANL over the next 10 years will be managed in accordance with the analysis provided in the 1999 LANL SWEIS and the DOE's ROD. The implementation of the Proposed Action considered in this EA together with other site waste generations would be in accordance with DOE's RODs and is not expected to result in any waste generation projection exceedences. Cleanup from the Cerro Grande Fire has mostly been accomplished; waste generation within the County of Los Alamos peaked in mid to late 2000 and early 2001. Waste generation is now within its historical range and no anticipated actions are expected that would result in greater than normal waste generation levels over the next 10 years.

Los Alamos County and LANL have historically been attainment areas for air quality with regards to criteria pollutants; also, visibility has always been excellent. Implementation of the Proposed Action is not expected to change the overall air quality of the Pajarito Plateau. With the anticipated increase in the number of acres of forest to be treated over the next 10 years across New Mexico, which will include the use of prescribed burns, the number of days when visibility may be lessened will increase but overall air quality should not be affected. The issuance of burn permits by the State of New Mexico will be coordinated so that burning in the immediate vicinity of LANL and Los Alamos County will be staggered among the agencies that use this treatment method. DOE does not currently use burning as a forest treatment method but may make a decision to do so within the next 10 years. If so, this forest treatment method would be coordinated with the State of New Mexico and the Interagency Wildfire Management Team, a cooperative organization of land stewards across the Pajarito Plateau formed to communicate and provide support and action recommendations.

Data and analysis of LANL surface and groundwater quality samples taken from test wells indicate that LANL operations and activities have influenced the surface water within LANL boundaries and some of the alluvial and intermediate perched zones within the LANL region. Detail on surface and groundwater quality can be found in the annual LANL Environmental Surveillance and Compliance Report (LANL 2000d). No LANL activities or projects are foreseen over the next 10 years that would cause an increase in deterioration of surface and groundwater quality in the region. Efforts underway to control erosion downstream from LANL and within the LANL boundaries resulting from the Cerro Grande Fire and its

recovery efforts are expected to address potential problems resulting from storm events until up-gradient vegetation has been reestablished.

Cultural resources are very prevalent over the Pajarito Plateau, particularly in the case of prehistoric sites. DOE and UC are in the process of developing the LANL Cultural Resource Management Plan; this plan will eventually include a detailed assessment of LANL's cultural resources. The Proposed Action is not expected to effect any cultural resources, nor would its implementation result in any changes to the resource management anticipated.